

1. Applicants' Invention

Applicants' invention provides compounds and methods for making compounds that use certain organo-acid phosphate molecules to impart improved physical and chemical qualities including lacing resistance, improved dispersion and decreased chemical reactivity when combined with pigments and/or fillers and incorporated into polymeric matrices. As reflected in the amended claims above, a compound made according to the present invention is comprised of a pigmentary base that has been treated with an organo-acid phosphate compound and micronized.

2. Response to Examiner's Rejections

- a. Response to Rejection of claims 1-7, 14 -29, and 34 -37 as unpatentable over German Patent Application Serial No. 1,234,234
under 35 U.S.C. §§ 102(b) and 103(a)

The Examiner rejected claims 1 -7, 14 -29 and 34 -37 under 35 U.S.C. §§ 102(b) and 103(a) as unpatentable over German Patent Application Serial No. 1,234,234. The Examiner wrote:

DE teaches the instant pigments treated with an organic-acid phosphate compound in examples 3 and 4 which meets the instant formula of claim 3. Dried pigments of various acids are taught at page 1, lines 4 and 23 -26 of the translated paper.

Applicants express no opinion as to the Examiner's position with respect to the originally filed claims, and reserve the right to respond to them at a later time. However, Applicants submit that in light of the amendments proposed above, the pending claims are clearly patentable over German Patent Application Serial No. 1,234,234. Specifically, German Patent Application

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Serial No. 1,234,234 does not disclose micronizing a treated pigment. Thus, pending claims 1-7, 14-29, and 34-37 are not anticipated by that reference.

Without micronization, the pigment product of the German Patent Application Serial No. 1,234,234 will be coarse and more difficult to disperse. Because in that reference a qualitatively different pigment is produced, the reference does not teach, disclose or otherwise suggest the treated and micronized pigments of the Applicants' invention. Consequently, amended claims 1-7, 14-29, and 34-37 are not obvious in light of it.

- b. Response to Rejection of claims 1, 2, 4, 6, 8, 10, 12, 14, 18, 20, 22, 24, 26, 28, 30, 32 and 34 -38 as unpatentable over U.S. Pat. No. 5,397,391

The Examiner rejected claims 1, 2, 4, 6, 8, 10, 12, 14, 18, 20, 22, 24, 26, 28, 30, 32, and 34 -38 under 35 U.S.C. §§ 102(b) and 103(a) as unpatentable over U.S. Patent No. 5,397,391. ("Stramel") Specifically, the Examiner wrote:

Stramel teaches the instant pigments treated with an organic-acid phosphate compound at col. 4, lines, 16 -40 and in examples which inherently meets the instant reaction products. Pre-treated pigments are taught at col. 3, lines 41 -53 and methods of making phosphate esters treated pigments are taught at col. 3, lines 33 -40 (spray drying), 54 to col. 4, lines 15. The intensifier bar of a V-blender meets the instant micronization. Also, the matrix resins such as polyethylene (col. 4, line 62) and an amount of pigments therein (col. 5, lines 29 -33) are taught.

Applicants respectfully disagree with the Examiner's position.

Applicants note that the Examiner rejects: the originally filed claims that are directed to pigments in which the pigmentary base has been treated with the products resulting from the

reaction of the organic alcohols and either P_2O_5 or phosphoric acid (claims 1, 2, 4, 6, 8, 10, 12, 14, 18, 20, 22, 24, 26, 28, 30, and 32); and all of the method claims (claims 34 -38). Initially, the Examiner implies that the organo-acid phosphate compound of Stramel is a product formed by the reactants of Applicants' claims. However, although, the Examiner's statement that Applicants' products are inherently disclosed by the cited passage, the cited passage does not specifically teach, disclose or otherwise suggest that the compounds that are taught, are made from Applicants' reactants. Applicants respectfully submit that in the absence of pointing to a portion of the reference that discusses these reactants, the rejection is improper. Further, the reference does not teach, suggest or otherwise disclose using the particular reactants of the rejected claims. Consequently, these claims are not obvious in light of Stramel. Claim 34 is directed to a method for making a pigment that uses the same reactants that are used in claims 1, 2, 4, 6, 8, 10, 12, 14, 18, 20, 22, 24, 26, 28, 30, and 32. Thus, for the reasons described above, claim 34 is also patentable over the cited reference.

Claims 35 -38 are directed to methods for preparing a pigment in which an organo-acid phosphate compound of a particular formula is combined with a pigmentary base. Stramel does not disclose using organo-acid phosphate compounds of this formula. Thus, Applicants respectfully submit that claims 35 -38 are not anticipated by Stramel. Further, because Stramel does not teach, disclose or otherwise suggest the invention as reflected in amended claims 35 - 38, Applicants respectfully submit that claims 35 -38 are not obvious in light of Stramel.

Moreover, even if the Examiner were to maintain that claims 1, 2, 4, 6, 8, 10, 12, 14, 18, 20, 22, 24, 26, 28, 30, 32, and 34-38 as originally filed are not patentable over Stramel, the claims as amended would nonetheless be patentable over this reference. The Examiner has not cited any portion of Stramel that teaches, suggests or otherwise discloses a micronization step. The Examiner has, however, already taken the position that the V-blender "meets the instant micronization," which is presumably directed to originally filed claim 38. Applicants

respectfully disagree with this assertion. Although an intensifier bar of a V-blender may break up large aggregates of a powder as it sprays an organic liquid onto the powder, the intensifier bar of a V-blender does not impart the energy of micronization. Micronization causes high-energy collisions between pigment particles resulting in breaking apart of small clusters of even two or three particles into individual particles. Mixing a powder in a V-blender with an intensifier bar merely breaks up large aggregates of the powder leaving small, tightly bound clusters intact. Thus, the disclosure of a V-blender in Stramel does not teach disclose or otherwise suggest micronizing a pigment that has been treated with the organo-acid phosphate of the present invention.

Based on the amendments and arguments above, Applicants respectfully submit that claims 1, 2, 4, 6, 8, 10, 12, 14, 18, 20, 22, 24, 26, 28, 30, 32, and 34 -38 are patentable over Stramel, and this rejection should be withdrawn.

c. Response to Rejection of claims 1 - 9, 14, 15, 18 -29 and 34
as unpatentable over U.S. Pat. No. 5,876,493

The Examiner alleges that originally filed claims 1 - 9, 14, 15, 18 -29 and 34 are not patentable over U.S. Pat. No. 5,876,493 ("Menovcik"). Specifically, the Examiner alleges: "Menovcik et al. teach the instant pigments treated with an organo-acid phosphate compound at col. 3, lines 1 -22. The Examiner alleges that the "method of treatment and pre-treated pigments are taught at col. 1, lines 52 - 57 and col. 3, lines 62 -62," and concludes that Applicants' originally filed claims are not patentable over Menovcik. Applicants respectfully disagree with the Examiner's conclusions.

Menovcik is directed to stabilizing inorganic pigments in aqueous media and water borne coating compositions in order to generate a pigment. The processes of Menovcik do not include

a micronization step. Thus, Applicants respectfully submit that their invention as currently claimed in amended claims 1-9, 14, 15, 18-29, and 34 is not anticipated by Menovcik. Further, because Menovcik does not teach, disclose or otherwise suggest micronizing a pigment, the amended claims are not obvious in light of Menovcik.

Applicants also note that even if the Examiner were to determine that claims 1 and 3 are not patentable over Menovcik, claims 18 and 19 would nonetheless be patentable. Menovcik discloses the use of relatively large amounts of polyesters, pyrophosphates esters and mixtures of these esters -- between about 25 wt.% and 50 wt.%. See Column 4, lines 15 -17. By contrast, pending claims 18 and 19 limit the amount of organo-acid phosphate compound to between about 0.01 wt.% to about 5 wt.%. Thus, Menovcik does not anticipate claims 18 and 19. Moreover, because Menovcik discloses higher ranges and does not suggest that the lower ranges of Applicants' claims are possible, it teaches away from the claimed ranges of pending claims 18 and 19.

Menovcik's teaching away from Applicants' claims 18 and 19 is further evidenced by its suggestion that low acid numbers, *e.g.*, between 10 mg KOH/g and 50 mg KOH/g are important aspects of its invention. See *e.g.*, Column 1, lines 48 -50. By contrast, one skilled in the art would recognize that Applicants' ingredients have significantly higher acid values. Thus, again Menovcik teaches away from Applicants' invention as reflected in pending claims 18 and 19.

Applicants respectfully submit that because Menovcik does not teach, disclose or otherwise suggest Applicants' invention as reflected in pending claims 1 -9, 14, 15, 18 -29 and 34, the Examiner's rejections based on Menovcik should be withdrawn

- d. Response to Rejection of claims 1 - 38 as obvious
over DE 1,234,234 in view of Stramel, Menovcik or Herget

The Examiner rejects all of the originally filed claims as obvious over German Patent Application 1,234,234 in view of Stramel, Menovcik or Herget. However, the substance of this rejection is limited to the claims that discuss pre-treatment of pigments. Because the Examiner has not discussed the substance of any other claims, Applicants respectfully submit that this rejection is not directed to claims other than claims 8 -13. To the extent that the Examiner intended for this rejection to apply to claims 1 -7 and claims 14 -38, for the reasons described above, Applicants respectfully submit that none of the cited references, alone or in combination, teach, disclose or otherwise suggest Applicants' invention as reflected in the pending claims. Applicants further submit that even if these references in combination were to suggest Applicants' invention as reflected in the pending claims, there Examiner has not identified any motivation to combine these references, and the rejection should be withdrawn.

With respect to claims 8 - 13, Applicants respectfully submit that for reasons described above, DE 1,234,234, in combination with any of the other three cited references, fails to teach, disclose, or otherwise suggest Applicants' invention. Additionally, although pre-treatment of pigments is well-known in the art, pre-treated pigmentary bases that are subsequently treated with the organo-acid phosphates of the present invention and micronized are not known in the art, and are not taught, suggested or otherwise disclosed in the cited references. Further, none of the cited references suggest Applicants' invention as reflected in the pending claims, and the Examiner has not pointed to any motivation to combine these references. Thus, Applicants respectfully submit that all of the pending claims as amended are not obvious in light of the cited references, and the rejection should be withdrawn.

e. Response to Rejection of claims 1 - 7, 14 -31 and 34 -38 over Johnson

The Examiner rejects claims 1 - 7, 14 - 31 and 34 -37 as anticipated by or, in the alternative as obvious over U.S. Pat. No. 5,466,482. ("Johnson") The Examiner alleges that Johnson teaches the instant pigments treated with an organic-acid phosphate compound and cites specific examples of M and R groups. Applicants respectfully disagree with the Examiner's conclusions.

Johnson is directed to surface treating organic pigments for waterborne coatings. See Column 1, lines 8 -9. Johnson does not teach, disclose, or otherwise suggest treating pigments with the organo-acid phosphate compounds of the present invention and micronizing those compounds in order to form treated pigment as reflected in the amended claims. Noticeably, there is no suggestion to micronize the treated pigments. In fact, Johnson uses wet chemistry, in which he did not use micronization.

Additionally, Applicants also respectfully disagree with the Examiner's conclusion that Johnson teaches treatment of the pigmentary bases of the present invention with an organo-acid phosphate compound. The Examiner points to the abstract and column 1 to describe the treatment and the organic acid phosphate compound. Applicants respectfully submit that column 1 does not describe the organo-acid phosphate compound, and believe that the Examiner intended to cite column 2. Although the cited reference discloses an organo-acid phosphate compound, it does not teach, disclose or otherwise suggest treating the pigmentary bases of the present invention with this compound.

The Examiner points to column 4, lines 25 -52 and lines 63 -64 to column 5, lines 14 -15 for the proposition that Johnson discloses treating pigmentary bases with organo-acid phosphate compound. However, according to these passages, the invention of Johnson "can be carried out applying the phosphoric acid monoester to the surface of an organic pigment." Column 4, lines

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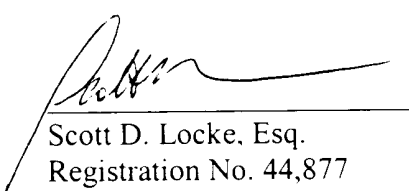
27 -28 (emphasis added). This treated organic acid pigment may, according to Johnson be mixed with other materials such as titanium dioxide. Column 4, lines 62 -64. Thus, while Johnson suggests treating organic pigments with organo-acid phosphates and mixing them with substances such as titanium dioxide, Applicants' invention as reflected in the pending claims are directed to treating the pigmentary base itself with the organo-acid phosphate compound. Thus, Applicants respectfully submit that the pending claims are not anticipated by Johnson. Further, because Johnson does not teach, suggest or otherwise disclose Applicants' invention, Applicants respectfully submit that the pending claims are not obvious in light of Johnson.

3. Conclusion

Based on the foregoing amendments and arguments, Applicants respectfully submit that the outstanding rejections should be withdrawn and the pending claims are in condition for allowance. The Examiner is invited to contact the undersigned attorney of record if he can be of assistance if furthering prosecution.

With the Response to First Office Action, Applicants have submitted a check for \$920.00. If any additional fee is required, the United Patent & Trademark Office is hereby authorized to charge deposit account number 11-071.

Respectfully submitted,



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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: El-Shoubary, *et al.*

Docket No.: 13093

Application Serial No.: 09 723,098

Examiner: Tae H. Yoon

Filed: November 27, 2000

Group Art Unit: 1714

For: "Organo-acid Phosphate Treated Pigments"

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May 20, 2002

Commissioner for Patents
Washington, DC 20231

COPY OF PAPERS
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MARKED UP CLAIMS PURSUANT TO 37 CFR § 1.121

Sir:

Pursuant to 37 C.F.R. § 1.121, a marked-up copy of each of the amended claims follows:

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I hereby declare that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Washington D.C. 20231

5/20/02
May 20, 2002

Kim Padilla

1. (Amended) A **micronized** pigment comprising a pigmentary base that has been treated with the products resulting from the reaction of organic alcohols and either P_2O_5 or phosphoric acid.

3. (Amended) A **micronized** pigment comprising a pigmentary base that has been treated with an organo-acid phosphate compound having the formula:



wherein $x = 1$ or 2 ;
 $y = 3 - x$; and
R is an organic group having from 2 to 22 carbon atoms.

34. (Amended) A method for preparing a pigment, comprising combining a pigmentary base and an organo-acid phosphate compound, wherein the organo-acid phosphate compound comprises the reaction products of organic alcohols, and either P_2O_5 or phosphoric acid **and micronizing said pigmentary base that has been combined with said organo-acid phosphate compound.**

35. (Amended) A method for preparing a pigment, comprising combining a pigmentary base and an organo-acid phosphate compound, wherein the organo-acid phosphate compound has the formula:



wherein $x = 1$ or 2 ;
 $y = 3 - x$; and

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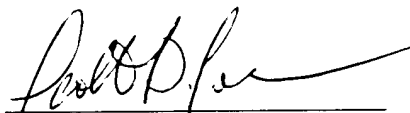
R is an organic group having from 2 to 22 carbon atoms;

and micronizing said pigmentary base that has been combined with said organo-acid phosphate compound.

REMARKS

Accompanying the submission of the above-amended claims are a Response to First Office Action, a Petition for the Extension of Time, and a check for \$920.00. For the reasons identified in the accompanying Response, Applicants request that these amendments be entered and that all outstanding rejections be withdrawn.

Respectfully submitted,



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